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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,289	07/15/2003	Victor C. Esch	P1-37B	7435

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John P. Wooldridge
1334 Ridegestone Ct.
Livermore, CA 94551

EXAMINER	
BAXTER, ZOE E	

ART UNIT	PAPER NUMBER
3735	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,289	ESCH ET AL.	
	Examiner	Art Unit	
	Zoe E. Baxter	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show reference 30' in figure 5 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: The detailed description on page 14 line 11 defines the detector as reference number 80 and the sensor as reference number 90, then refers back to the sensor and uses reference number 80. The detailed description also refers to reference number 30' but 30' is not in the drawings. Reference 95 in figure 7 is not described in the description.

3. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 23 and 24 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear what the inventor is describing when referring to a return signal that is either at a maximum or minimum at an operating wavelength. No art is being applied to these claims. However, upon resolution of the above issue, the art rejection will be revisited.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4, 13, 26, 27, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Cimochowski et al. (U.S. Patent No. 5807258). Cimochowski et al. disclose a biocompatible material formed in a cylindrical shape, a first pressure sensor imbedded in the wall of the graft and a second pressure sensor imbedded in the wall of the graft (column 5 lines 1-21).

8. Referring to claim 2 Cimochowski et al. disclose an antenna coil for conveying the signal to a point external to the patient's body so that the signal is usable for evaluating a condition of the graft (column 5 lines 7-10).

9. Referring to claim 4 Cimochowski et al. disclose a tubular structure comprising a biocompatible material (column 5 line 1).

10. Referring to claim 13 Cimochowski et al. disclose that the first and second transducers are disposed within the wall of the tubular structure (column 5 lines 4-15).

11. Referring to claim 26 Cimochowski et al. disclose a method of providing a tubular structure of biocompatible material, imbedding a first pressure sensor and imbedding a second pressure sensor (column 5 lines 1-21).

12. Referring to claim 27 Cimochowski et al. disclose a method of using an antenna coil for conveying the signal to a point external to the patient's body and applying the pressure differential between the first and second sensors of the grafts located at opposite ends of the graft to determine the condition of the graft (column 5 lines 4-21).

13. Referring to claim 30 Cimochowski et al. disclose a method of determining the location or extent of an occlusion within or near a tubular structure wherein said tubular structure comprises biocompatible material (column 5 line 1) and includes a first and second passive sensors adapted to produce a first and second signal that is a function of liquid pressure, the method comprising collecting and analyzing first and second signals to determine the location or extent of an occlusion within or near said tubular structure (column 5 lines 1-21).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Pinchuk et al. (U.S. Patent No. 5116360). Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column 5 lines 1-21). Cimochowski et al. do not teach that the biocompatible material consists of polytetrafluorethylene and polyurethane. Pinchuk et

al. teach using polytetrafluorethylene and polyurethane to make a biocompatible material. It would be obvious to one skilled in the art to combine these because Pinchuk et al. teach that the polyurethane is beneficial because it resists degradation (column 4 lines 15-23) and polytetrafluorethylene is beneficial because of the known strength in the body (column 3 lines 15-20).

16. Claims 5-7, 14, 17, 18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Allen et al. (U.S. Patent No. 6111520). Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column 5 lines 1-21). Cimochowski et al. do not teach that the passive sensor elements each comprise a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency. Allen et al. teach a sensor that comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency (column 7 lines 37-58). It would be obvious to one skilled in the art to combine these two works because as Allen et al. teach there is an advantage that the pressure sensor is comprised of completely passive components and since there is no need for a battery it takes up less space (column 8 lines 10-11).

17. Referring to claim 6 Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material and a first and second passive sensor elements imbedded within the tubular structure, wherein the first and second sensor elements produce a signal that is a function of liquid pressure within the tubular

structure (column 5 lines 1-21). Cimochowski et al. fail to teach that the sensor elements are designed such that the resonance frequency changes as said liquid pressure changes. Allen et al. teach that as the pressure changes the capacitance changes and resonant frequency changes (column 7 lines 53-56). It would be obvious to one skilled in the art to combine these two methods because as Allen et al. teach it is a method that requires no external power source hence keeping the sensor compact (column 8 lines 10-11).

18. Referring to claim 7 Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material and a first and second passive sensor elements imbedded within the tubular structure, wherein the first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Cimochowski et al. fail to teach that the sensor elements resonate at different resonance frequencies to easily separate the signals during measurement. Allen et al. teach that two passive sensors must resonate at sufficiently different frequencies (column 10 lines 51-53). It would be obvious to one skilled in the art to combine these two teachings to prevent any interference between the two sensors as taught by Allen et al. (column 10 lines 53-54)

19. Referring to claim 14 Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material and a first and second passive sensor elements imbedded within the tubular structure, wherein the first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Cimochowski et al. fail to teach a cylindrical capacitor

having plates with a spacing that is a function of said liquid pressure within the tubular structure. Allen et al. teach a cylindrical capacitor having plates with a spacing that is a function of liquid pressure (column 7 lines 5-15). It would be obvious to one skilled in the art to use this capacitor because it requires no external power source (column 2 line 31) and they can be machined from various materials (column 6 lines 52-67).

20. Referring to claim 17 as stated above Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column 5 lines 1-21). Cimochowski et al. do not teach that the passive sensor elements each comprise a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency. Allen et al. teach a sensor that comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency (column 7 lines 37-58). It would be obvious to one skilled in the art to combine these two works because as Allen et al. teach there is an advantage that the pressure sensor is comprised of completely passive components and since there is no need for a battery it takes up less space (column 8 lines 10-11). Cimochowski et al. additionally disclose the RF coupling coil, which is the inductor, to be coiled around the tubular member (column 15 lines 51-55). It would be obvious to one skilled in the art to use this method because the coupling coil more readily couples to an external coil (column 16 lines 1-2).

21. Referring to claim 18 as stated above Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column

5 lines 1-21). Cimochowski et al. do not teach that the passive sensor elements each comprise a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency. Allen et al. teach a sensor that comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency (column 7 lines 37-58). It would be obvious to one skilled in the art to combine these two works because as Allen et al. teach there is an advantage that the pressure sensor is comprised of completely passive components and since there is no need for a battery it takes up less space (column 8 lines 10-11). Cimochowski et al. additionally disclose the RF coupling coil, which is the inductor (column 15 lines 51-55). The inductor is coiled parallel to the tubular structure the orientation of the conductor coil is a design choice in that if one desired the inductor can change the orientation of the inductor without affecting the induction of the circuit.

22. Referring to claim 28 Cimochowski et al. discloses a method of providing a tubular structure, a first passive pressure sensor element and a second passive pressure sensor element (column 5 lines 1-21). Cimochowski et al. do not teach that the passive sensor elements each comprise a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency. Allen et al. teach a method wherein the sensor comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally

resistive at a characteristic resonance frequency (column 7 lines 37-58). It would be obvious to one skilled in the art to combine these two works because as Allen et al. teach there is an advantage that the pressure sensor is comprised of completely passive components and since there is no need for a battery it takes up less space (column 8 lines 10-11).

23. Claims 8 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Peterson et al. (U.S. Patent 6939299). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure and a means for collecting and analyzing the first and second signals to determine the location or extent of an occlusion within the tubular structure (column 5 lines 1-21). Cimochowoski et al. fail to teach that the apparatus comprises an external pickup coil adapted for detecting the resonance frequency of the first and second passive sensor elements. Peterson et al. teaches an external pickup coil adapted for detecting the resonance frequency of a passive sensor element (column 5 lines 23-32). It would be obvious to one skilled in the art to incorporate an external pickup coil because it can be used without disturbance to the system in which it interrogates (column 5 lines 33-36).

24. Referring to claim 31 Cimochowski et al. disclose a method of determining the location or extent of an occlusion within or near a tubular structure wherein said tubular structure comprises biocompatible material (column 5 line 1) and includes a first and

second passive sensors adapted to produce a first and second signal that is a function of liquid pressure, the method comprising collecting and analyzing first and second signals to determine the location or extent of an occlusion within or near said tubular structure (column 5 lines 1-21). Cimochowski fail to disclose a method including the step of collecting and analyzing the pressure sensor signals using an external pickup coil adapted for detecting the resonance frequency of the first and second pressure sensor signals. Peterson et al. disclose a method of using an external pickup coil adapted for detecting the resonance frequency of a passive sensor element (column 5 lines 23-32). It would be obvious to one skilled in the art to incorporate an external pickup coil because it can be used without disturbance to the system in which it interrogates (column 5 lines 33-36).

25. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Halperin et al. (U.S. Patent No. 5564434). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure and a means for collecting and analyzing the first and second signals to determine the location or extent of an occlusion within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach the sensor elements are adapted to have a response time of less than 100 msec. Halperin et al. teach a blood pressure signal sample period of 4.0 msec, which is less than 100 msec (column 6 lines 32-35). It would be obvious to one skilled in the art to use this frequency because Halperin et al

teach that the data may be analyzed to identify portions of the cardiac cycle (column 6 lines 40-46).

26. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Keilman et al. (U.S. Patent No. 6231516). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure and a means for collecting and analyzing the first and second signals to determine the location or extent of an occlusion within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach the resonance frequency is within a range of 1MHz to 100MHz. Keilman et al. teach that the RF excitation and frequencies used for communicating data related to the fluid flow through a stent can be up to about 40MHz and as much as 100MHz may be feasible depending on the depths of the implanted stent (column 14 lines 30-36). It would be obvious to one skilled in the art to choose a resonance frequency between 1MHz and 100MHz because as Keilman teaches there are no problems with RF penetration of subjects skin anticipated within this range (Column 14 lines 44-49).

27. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Reich et al. (PGPUB US 2002/0183628 A1). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a

function of liquid pressure within the tubular structure and a means for collecting and analyzing the first and second signals to determine the location or extent of an occlusion within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach that the tubular structure comprises at least two layers of biocompatible material. Reich et al. teach two layers of material, which may be any conventional material used for the endograft (column 2 paragraph 0025). It would be obvious to one skilled in the art to use a two-ply because as Reich et al teach the sensors can be placed between the layers (column 3 paragraph 0026).

28. Referring to claim 12 Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure and a means for collecting and analyzing the first and second signals to determine the location or extent of an occlusion within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach that the tubular structure comprises at least two layers of biocompatible material and the sensors are integrated between the layers. Reich et al. teach two layers of material, which may be any conventional material used for the endograft (column 2 paragraph 0025). Reich also teaches placing the sensors between the two layers (column 3 paragraph 0026). It would be obvious to on skilled in the art to use this method because as Reich et al teach this method locally captures each pressure sensor and traps it in the endograft thereby the pressure sensors cannot be liberated inside the patient during use (column 3 paragraph 0028).

29. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Allen et al. as applied to claim 14 above, and further in view of Hill (U.S. Patent No. 3688588). Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column 5 lines 1-21). Allen et al. teach a sensor that comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency (column 7 lines 37-58). Cimochowski et al. and Allen et al. fail to teach the use of a split cylindrical capacitor. Hill teaches the use of a split cylinder capacitor (Abstract lines 31-32). It would be obvious to one skilled in the art to use a split cylindrical capacitor because as Hill teaches it has proven to give excellent measuring accuracy (Abstract line 34).

30. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Allen et al. as applied to claim 14 above, and further in view of Birken (U.S. Patent No. 3478589). Cimochowski et al. discloses a tubular structure, a first passive sensor element and a second passive sensor element (column 5 lines 1-21). Allen et al. teach a sensor that comprises a capacitive element and an inductive element that forms an LC circuit and the LC circuit comprises an impedance that becomes totally resistive at a characteristic resonance frequency (column 7 lines 37-58). Cimochowski et al. and Allen et al. fail to teach the use of a dielectric fluid trapped capacitor. Birken teaches the use of a dielectric fluid trapped capacitor (column 1 lines 11-14). It would be obvious to one skilled in the art to use a dielectric fluid trapped capacitor because as Birken teaches it has a high degree of sensitivity and

accuracy particularly in connection with pressure measuring transducers (column 2 lines 1-5).

31. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Nova et al (U.S. Patent No. 6340588). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach that the sensors comprise an optical pressure sensor element having an optical property that changes as a function of liquid pressure in the tubular structure. Nova et al. teach the use of an implantable optical pressure sensor (column 140 lines 66-67). It would be obvious to one skilled in the art to use this method because as taught by Nova et al. this pressure sensor would enable the user to obtain long term monitoring which would better control a chronic condition (column 140 lines 50-55).

32. Referring to claim 20 as stated above Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach an optical pressure sensor which comprises a Fabry-Perot filter element having a mirror spacing that changes as a function of liquid pressure within the tubular structure. Nova et al. teach that Fabry-Perot interferometric devices are also known for their ability to measure

pressure change (column 142 lines 8-9). It would be obvious to one skilled in the art to use this method although they may impose a limitation on the ability to minimize the device because they require two light sources they make the device quite accurate (column 142 lines 12-15).

33. Referring to claim 21 as stated above Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Cimochowski et al. do not teach an optical pressure sensor, which comprises a broadband light source adapted to illuminate the optical pressure sensor element and produce a return signal. Nova et al. teach the optical sensor includes a light source, which illuminates the optical sensor and is reflected back producing a return signal (column 141 lines 1-6). It would be obvious to one skilled in the art to use this method although they may impose a limitation on the ability to minimize the device because they require two light sources they make the device quite accurate (column 142 lines 12-15).

34. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Nova as applied to claim 21 above, and further in view of Kaufman et al. (PGPUB US 2002/0183597 A1). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular

structure (column 5 lines 1-21). Nova et al. teach the optical sensor includes a light source, which illuminates the optical sensor and is reflected back producing a return signal (column 141 lines 1-6). Neither Cimochowski et al. or Nova et al. teach using a spectrometer adapted to measure said return signal to detect the operating wavelength of the filter. Kaufman et al. teach the returned signal is analyzed with a spectrometer coupled to a signal processor. It would be obvious to one skilled in the art to use this method because it then enables the user to determine a sensor measurement based upon a phase differential between returned signals (column 3 paragraph 0025).

35. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. in view of Nova as applied to claim 21 above, and further in view of Wheatley (U.S. Patent No. 5293046). Cimochowski et al. disclose an apparatus comprising a tubular structure of biocompatible material, a first and second passive sensor element imbedded within tubular structure wherein first and second sensor elements produce a signal that is a function of liquid pressure within the tubular structure (column 5 lines 1-21). Nova et al. teach the optical sensor includes a light source, which illuminates the optical sensor and is reflected back producing a return signal (column 141 lines 1-6). Neither Cimochowski et al. or Nova et al. teach a fluorescent material adapted to produce a fluorescent signal upon interaction with light from said broadband light source. Wheatley teaches the use of ruby to produce fluorescence and measure the optical response of the ruby as it varies dynamically with changes in the pressures of the ruby's environment (column 3 lines 4-13). It would be obvious to one skilled in the art to use this method because the detection is made

without the mechanical limitations that characterize mechanical pressure transducers as taught by Wheatley (column 2 lines 15-17).

36. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimochowski et al. as applied to claim 28 above, and further in view of Allen et al. Cimochowski et al. fail to teach a method in which the sensor elements are designed such that the resonance frequency changes as said liquid pressure changes. Allen et al. teach the method that as the pressure changes the capacitance changes which inevitably changes the resonant frequency (column 7 lines 53-56). It would be obvious to one skilled in the art to combine these two methods because as Allen et al. teach it is a method that requires no external power source hence keeping the sensor compact (column 8 lines 10-11).

Conclusion

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zoe E. Baxter whose telephone number is 571-272-8964. The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.

38. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

39. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zoe E. Baxter
Examiner
Art Unit 3736

ZEB

Charles A Marmor, II
SPE, Art Unit 3735